DOCUMENT RESUME

ED 270 296 SE 046 441

| | |
|---|---|
| TITLE | Passive Solar Construction--Design and Performance. |
| INSTITUTION | Conservation and Renewable Energy Inquiry and Referral Service (DOE), Silver Spring, MD. |
| REPORT NO | DC-169; DOE/CE-0063 |
| PUB DATE | Jan 84 |
| NOTE | 4p.; For other information bulletins in this series, see SE 046 433-440 and SE 046 444. |
| PUB TYPE | Reference Materials - Bibliographies (131) |
| EDRS PRICE | MF01/PC01 Plus Postage. |
| DESCRIPTORS | Books; *Building Design; *Construction (Process); *Energy Conservation; *Energy Education; Reports; *Solar Energy |
| IDENTIFIERS | *Passive Solar Design |

ABSTRACT

Presented is a list of books and reports intended to serve as technical sources of information for the building professional interested in energy conservation. These publications are grouped under these headings: (1) energy-conserving building design; (2) passive systems/design; (3) passive systems/performance; and (4) proceedings (of the American Solar Energy Society's annual passive conference). Each entry includes title, author(s), number of pages, cost, source, and annotation. A separate source list is also provided. (JN)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED270296

DOE/CE-0063

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

INFORMATION
U.S. DEPARTMENT OF ENERGY
CONSERVATION AND RENEWABLE ENERGY INQUIRY AND REFERRAL SERVICE

# Passive Solar Construction — Design and Performance

## Energy-Conserving Building Design

The following books and reports are technical sources of information for the building professional interested in energy conservation.

ASHRAE HANDBOOK OF FUNDAMENTALS... ASHRAE Publications, 1791 Tullie Circle, N.E., Atlanta, GA 30329, 1981, $80.00. Provides the theory and basic data essential for equipment development, system design, and application.

ASHRAE STANDARD 90A-80 ENERGY CONSERVATION IN NEW BUILDING DESIGN ... ASHRAE Publications, 1791 Tullie Circle, N.E., Atlanta, GA 30329, 1980, $8.00 (members), $16.00 (nonmembers). Sets forth requirements for the design of new residential buildings; covers their exterior envelopes and selection of the HVAC, service water heating, energy distribution, and illuminating systems and equipment for effective use of energy.

ENERGY CONSERVATION IN BUILDINGS AND INDUSTRIAL PLANTS... M. Meckler; McGraw-Hill, New York, NY 10020, 1981, 270 pp, $27.50. Examines the opportunities and alternatives for energy conservation in the design, construction, and operation of buildings and industrial facilities.

ENERGY CONSERVATION THROUGH BUILDING DESIGN... D. Watson (ed.); McGraw-Hill, New York, NY 10020, 1979, 305 pp, $29.50. Written by leading authorities; includes information on energy efficient building design along with strategies for analyzing existing structures and specific ways to reduce their energy consumption.

MANUAL J–LOAD CALCULATION FOR RESIDENTIAL WINTER AND SUMMER AIR CONDITIONING... Air Conditioning Contractors of America, 1228 17th Street, N.W., Washington, DC 20036, 6th edition (1982), $6.00 (members), $12.00 (nonmembers). Features a relatively simple method of calculating heat loss from residential buildings.

NAHB THERMAL PERFORMANCE GUIDELINES FOR APARTMENTS AND CONDOMINIUMS ... National Association of Home Builders, 15th and M Streets, N.W. Washington, DC 20005, 1978, 32 pp, $5.00 (members), $7.00 (nonmembers). Thermal performance guidelines designed to permit a builder to select a balanced and cost-effective energy conserving package.

NAHB THERMAL PERFORMANCE GUIDELINES FOR ONE AND TWO FAMILY DWELLINGS... National Association of Home Builders, 15th and M Streets, N.W., Washington, DC 20005, 1978, 32 pp, $5.00 (members), $7.00 (nonmembers).

## Passive Systems/Design

The following books and reports pertain to the design of passive solar buildings and systems, are generally geared toward a technical audience.

THE BUILDER'S GUIDE TO SOLAR CONSTRUCTION... R. Schwolsky and J.I. Williams; McGraw-Hill, New York, NY 10020, 1982, 266 pp, $32.50. Describes the specific changes in design, materials, and construction techniques that builders must undertake for passive solar construction.

THE HAWKWEED PASSIVE SOLAR HOUSE BOOK... R. Wright et al; Rand McNally, Chicago, IL 60680, 1980, 192 pp, $8.95. A guide to building or retrofitting passive solar systems. Written for consumers but practitioners will find it useful as well.

THE INTEGRAL PASSIVE SOLAR WATER HEATER BOOK... D. Bainbridge; Passive Solar Institute, P.O. Box 722, Bascom, OH 44809, 1981, 102 pp, $10.95. Covers the history, design, and operation of breadbox water heaters.

SE 016 441

**DC 169, 2nd Edition, January 1984**

The Service is operated by Solar America, Inc., and the Franklin Research Center for the U.S. Department of Energy. The statements contained herein are based on information known to the Service at the time of printing. No recommendation or endorsement of any product or service is implied by its mention here. For more information, please contact the Service at P.O. Box 8900, Silver Spring, MD 20907 or call toll-free (800) 523-2929. In Pennsylvania call (800) 462-4983; In Alaska and Hawaii call (800) 233-3071.

NATURAL SOLAR ARCHITECTURE: A PASSIVE APPROACH ... D. Wright; Van Nostrand Reinhold Co., New York, NY 10001, 1978, 245 pp, $15.95. A comprehensive look at passive solar design, includes many diagrams and explanations of important concepts.

PASSIVE SOLAR CONSTRUCTION HANDBOOK... Steven Winter Associates; New York, NY 1981, 572 pp, $40.00. Report No. DE-8201-24, available for NTIS (see Source List). Geared toward builders and other members of the construction industry, this handbook focuses specifically on the construction of passive solar, single-family detached houses.

PASSIVE SOLAR DESIGN HANDBOOK: VOLUME ONE OF TWO VOLUMES: PASSIVE SOLAR DESIGN CONCEPTS... Total Environmental Action; 1980, 425 pp, $31.00. Report No. DOE/CS-0127-1, available from NTIS (see Source List). An introduction to passive solar heating and cooling; primarily qualitative.

PASSIVE SOLAR DESIGN HANDBOOK: VOLUME TWO OF TWO VOLUMES: PASSIVE SOLAR DESIGN ANALYSIS... J.D. Balcomb et al; Los Alamos Scientific Laboratory, 1980, 450 pp, $32.50. Report No. DOE/CS-0127-2, available from NTIS (see Source List). A quantitative exploration of passive solar heating; intended for architects and engineers already familiar with basic passive concepts.

PASSIVE SOLAR DESIGN HANDBOOK: VOLUME THREE: PASSIVE SOLAR DESIGN ANALYSIS... R. Jones (ed.); Los Alamos Scientific Laboratory, 1982, 670 pp, $12.00. Stock No DOE/CS/0127-3, available from GPO (see Source List). Updates Volume Two of the Passive Solar Design Handbook by the addition of new data on the optimum mix of conservation and solar, and direct gain, sunspaces, thermal storage walls, and solar radiation.

THE PASSIVE SOLAR ENERGY BOOK: EXPANDED PROFESSIONAL EDITION... E. Mazria, Rodale Press, Emmaus, PA 18049, 1979, 685 pp, $29.95. A complete guide to the design of passive solar buildings, includes the rules of thumb necessary for sizing various passive systems.

PASSIVE SOLAR ENERGY DESIGN AND MATERIALS... J.K. Paul (ed.); Noyes Data Corporation, Park Ridge, NJ 07656, 1979, 386 pp, $42.00. Excerpts from passive solar conference proceedings and government reports.

PASSIVE SOLAR MANUFACTURED BUILDINGS DEVELOPMENT AND ANALYSIS... R. deKieffer et al; Solar Energy Research Institute, 1982, 7 pp, $7.00. Report No. SERI/TP-254-1643, available from NTIS (see Source List). Describes the scope and content of the data derived from the Department of Energy's Manufactured Buildings Program by using a case study developed for the program.

THE SECOND PASSIVE SOLAR CATALOG... D. Bainbridge; Passive Solar Institute, P.O. Box 722, Bascom, OH 44809, 1980, 110 pp, $11.95. A continuation of Bainbridge's first catalog, this edition covers retrofitting passive solar energy systems and includes discussions of products.

## Passive Systems/Performance

The following reports pertain to the performance of passive solar buildings and are geared toward a technical audience.

ACTIVE CHARGE/PASSIVE DISCHARGE SOLAR HEATING SYSTEMS: THERMAL ANALYSIS AND PERFORMANCE COMPARISONS... J. Swisher; Solar Energy Research Institute, 1981, 43 pp, $8.50. Report No. SERI/TR-1104, available from NTIS (see Source List). Analyzes the performance of liquid-cooled active solar collector panels with a massive integral storage component.

CASE STUDY OF THE MASTIN DOUBLE-ENVELOPE HOUSE... R.F. Jones et al; Brookhaven National Laboratory, 1981, 69 pp, $11.50. Report No. BNL 51460, available from NTIS (see Source List). Gives the results of performance monitoring of an Ekose'a double-envelope home located in Middletown, Rhode Island.

CLASS B PERFORMANCE MONITORING OF PASSIVE/HYBRID SOLAR BUILDINGS... D. Frey, J. Swisher and M. Holtz; Solar Energy Research Institute, 1981, 7 pp, $7.00. Report No. SERI/TP-254-1492, available from NTIS (see Source List). Describes the Solar Energy Research Institute's Class B monitoring program. The purpose of the program was to produce accurate and consistent real-time estimates of the thermal performance of passive solar buildings, and detailed data regarding climate, indoor temperatures, and purchased energy needs.

A FREQUENCY—DOMAIN APPROACH TO PASSIVE BUILDING ENERGY ANALYSIS... K. Subbarao and J. Anderson; Solar Energy Research Institute, 1982, 37 pp, $8.50. Report No. SERI/TR-254-1544, available from NTIS (see Source List). Presents a new graphical approach to passive building design.

HUMAN COMFORT AND AUXILIARY CONTROL CONSIDERATION IN PASSIVE SOLAR STRUCTURES... W. Place et al; Solar Energy Research Institute, 1980, 22 pp, $7.00. Report No. TR-721-823, available from NTIS (see Source List). Investigates energy consumption and human comfort implications of various passive solar and energy conservation strategies for single-family, one-story, slab-on-grade residences in Albuquerque, NM and Washington, D.C.

LOS ALAMOS PASSIVE TEST CELL RESULTS FOR THE 1981-82 WINTER... R.D. McFarland et al; Los Alamos National Laboratory, 1982, 52 pp, $10.00. Report No. LA-9543-MS, available from NTIS (see Source List). Presents the results obtained from the monitoring of 14 different passive test cells.

LOW COST PERFORMANCE EVALUATION OF PASSIVE SOLAR BUILDINGS... L.S. Palmiter, L.B. Hamilton and M.J. Holtz; Solar Energy Research Institute, 1979, 62 pp, $10.00. Report No. SERI/RR-63-223, available from NTIS (see Source List). Describes the equipment necessary for low-level performance evaluation of passive solar buildings.

MONITORED PASSIVE SOLAR BUILDINGS... R.W. Jones; Los Alamos National Laboratory, 1982, 66 pp, $10.00. Report No. LA-9098-MS, available from NTIS (see Source List). Presents selected performance results from six monitored passive and hybrid solar-heated buildings.

PASSIVE SOLAR TEST MODULES... E.F. Moore and R.D. McFarland; Los Alamos National Laboratory, 1982, 78 pp, $11.50. Report No. LA-9421-MS, available from NTIS (see Source List). Presents the results for a survey of the use of test boxes, rooms and buildings for passive solar research.

PASSIVE TEST CELL DATA FOR THE SOLAR LABORATORY WINTER 1980-81... R.D. McFarland, Los Alamos National Laboratory, 1982, 82pp, $11.50. Report No. LA-9300-MS, available from NTIS (see Source List). Describes the results of the testing of several types of passive solar systems to determine the relative efficiency of various passive solar heating concepts, and to obtain data that could be used to validate computer simulation programs.

PERFORMANCE OF A SELECTIVE-SURFACE TROMBE WALL IN A SMALL COMMERCIAL BUILDING... R. Judkoff and F. Sokol; Solar Energy Research Institute, 1981, 5 pp, $7.00. Report No. SERI/TP-721-1158, available from NTIS (see Source List). Describes the effect that three different selective surfaces had on the performance of a Trombe wall.

## Proceedings

The proceedings of the American Solar Energy Society's annual passive conference are a rich source of up-to-date information on the design and performance of passive solar energy systems. Ordering information for the most recent proceedings follows.

PROCEEDINGS OF THE FIFTH NATIONAL PASSIVE SOLAR CONFERENCE... J. Hayes and R. Snyder (eds.); International Solar Energy Society, American Section, Amherst, MA, October 19-26, 1980, 1409 pp, $105.00 (members), $150.00 (nonmembers), available from ASES (see Source List).

PROCEEDINGS OF THE SIXTH NATIONAL PASSIVE SOLAR CONFERENCE... J. Hayes and W.A. Kolar (eds.); American Solar Energy Society, Portland, OR, September 8-12, 1981, 1000 pp, $105.00 (members), $150.00 (nonmembers), available from ASES (see Source List).

## SOURCE LIST

ASES
American Solar Energy Society
1230 Grandview Ave.
Boulder, CO 80302

GPO
Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

NTIS
National Technical Information Service
5285 Port Royal Rd.
Springfield, VA 22161